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Pear Evaluation Trial 2001

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Final Report – Summary

An evaluation trial of disease resistant pear selections, originating from the disease resistant pear breeding program at the Appalachian Fruit Research Station, Kearneysville, WV was set up in April 1996, at the Mount Vernon, WA research station. The trial plot consisted of 8 pear selections and 1 cultivar (Potomac), a total of 30 trees. One tree of the selection **76128-009** that failed to leaf out and subsequently died was replaced by a new tree in 1997, and additional trees of selections **67218-083** (3) and **76115-010** (2) were added at the same time. The planting consisted of 4 trees each of **Potomac**, **66125-035**, **66170-047**, **67218-083**, **71655-014**, **76115-010**, **76128-009** and **78304-057**, and 3 trees of **66131-021**, for a total of 35 trees in the completed trial.

The trial was brought to a close at the end of the 2001 harvest season. Final evaluations of pear samples after storage was conducted in December 2001 and as of January 2002 the trial plot will be removed. One selection, **66131-021**, has been released and named as '**Blake's Pride**.' Also being considered for release by Kearneysville is **78304-057**, which did well in West Virginia and at test sites in the Midwest. In the Mount Vernon trials the most promising selection was **71655-014** and it could possibly be named and released as a regional introduction.

Disease Ratings

In 1996, 1997, 1998 and 1999 all trees were rated for infection by pear scab (*Venturia pirina*) and powdery mildew (*Podosphaera leucotricha*). Scab ratings were based on per cent (%) of total leaves visibly affected, and mildew was rated by percent of shoot tips infected (% strikes.) Results, averaged, and highest rating recorded for any tree of each cultivar are shown in Table 1.

Table 1. Scab and mildew ratings

Cv./Selection	Scab Avg	Scab Max	Mildew Avg	Mildew Max
Potomac	2.50	10	5.50	40
66125-035	2.08	10	4.25	20
66131-021	1.67	5	5.21	40
66170-047	3.33	5	1.25	10
67218-083	1.67	5	2.50	10
71655-014	3.33	10	2.50	30
76115-010	3.33	10	9.30	30
76128-009	0.00	0	0.00	0
78304-057	2.50	5	3.75	20

These results show that selection **76128-009** was consistently clean of either scab or mildew infection, even in the year of 1997 when mildew ratings as high as 30-40% were recorded for some other selections. Unfortunately the fruit quality of this selection did not match its disease resistance. However it might still be useful as a breeding parent crossed with better quality varieties.

Harvest and Related Data

In 1999, the first year of full fruit production, comprehensive data were collected on all the selections in the trial. Results (averaged) relating to vigor as measured by trunk diameter, productivity and fruit size are shown in Table 2, below.

Cv./Selection	Total Yield kg	kg/tree	Fruit wt g (avg)	Trunk diam. (avg/max)
Potomac	83.12	20.78	196.0	61.4 / 66.0
66125-035	7.02	1.76	103.2	46.5 / 60.7
66131-021	7.14	2.38	167.2	58.9 / 62.4
66170-047	37.10	9.28	128.4	53.2 / 56.7
67218-083	3.28*	3.28*	205.0*	38.6*
71655-014	85.00	21.25	168.8	61.7 / 68.8
76115-010	32.80	8.2	206.4	47.7 / 63.3
76128-009	71.20	17.8	146.4	65.9 / 72.0

*Note: only one tree of 67218-083 was planted in 1996 from which data were taken (the other 3 were planted in 1997 so were not yet fruiting).

Reduced funding in the 2000 and 2001 season precluded any comprehensive data collection for those years. Basic data on harvest dates and pressure test readings were recorded, however, and a summary appears in Table 3, including harvest records for 1999, 2000 and 2001. The rating for fruit set is based on field observation, where 5=very heavy, all branches densely fruited; 4=moderately heavy, all branches bear some fruit; 3=moderate, some areas of tree not bearing; 2=light, most areas of tree not bearing; 1=very light, few fruits only.

Table 3. Summary of harvest data 1999–2001 (listed in harvest order)

Cv/Selection	PP	Set	1999	PP	Set	2000	PP	Set	2001
66170-047	13.6	2	8/27	15-13	5	8/28	14.1	3	9/05
76115-010	13.9	4	9/03	11-9	4	8/28	15.3	2-3	8/23
71655-014	11.9	4	9/08	14-13	5	8/24-9/11	13.1	3-4	8/23-8/30
76128-009	13.3	4	9/08	10-9	4-5	9/11	10.2	3-4	9/05
66131-021	17.6	2	9/16	16-14	4	9/11	14.9	2-3	9/10
67218-083	11.6	2	9/24	14-12	2	9/26	12.2	4	9/11
78304-057	14.5	2	9/24	13-11	3	9/26	14.1	4	9/25
66125-035	13.8	2	9/24	12-11	4	9/26	13.1	2	10/02
Potomac	14.5	4	9/24	13-11	4	10/02	14.0	4	10/02

Bloom Data

Bloom dates for trees in the trial plot were recorded and the results summarized in Table 4, below. In 1998 and 1999 bloom data, consisting the date of initial bloom, full bloom, and petal fall, as well as ratings of bloom density, were recorded for each tree in the plot. Bloom density was rated on the scale of 5=very heavy bloom, 4=heavy bloom, 3=moderate bloom, 2=light bloom, 1=very light to no bloom. In 2000 and 2001 restricted funding did not allow for such detailed observations, so that bloom data for those years are dates and ratings averaged in the field for each cultivar or selection. In the table below, the detailed ratings for 1998 and 1999 are averaged for comparison with subsequent years. Date given is that for full bloom only.

Table 4. Summary of bloom data 1998–2001

Cv/Selection	Density	1998	Density	1999	Density	2000	Density	2001
Potomac	1.8	04/09	2.3	04/20	5	04/19	5	04/18
76128-009	5.0	04/04	4.3	04/25	4	04/19	4	04/21
71655-014	4.0	04/09	4.3	04/26	5	04/19	5	04/23
66170-047	1.5	04/09	2.3	04/22	4	04/19	3	04/25
66125-035	2.5	04/09	3.3	04/28	4	04/19	4	04/25
66131-021	2.3	04/13	2.7	04/23	4	04/19	5	04/27
76115-010	1.0	no bloom	2.0	04/28	3-5	04/21	3-4	04/29
67218-083	3.0*	04/15	2.5	04/28	4	04/25	4	04/30
78304-057	3.8	04/24	3.8	05/03	4	04/28	4	05/05

* 3 of 4 trees were young

Fruit Evaluations

A detailed evaluation of the selections in this trial was conducted in 1999, the first full fruiting year, following the format provided by Dr. R. L. Bell of the Appalachian Research Station. In 2000 and 2001 evaluations were made on a more general basis as part of the overall fruit trials. The results for each selection or cultivar are briefly summarized below.

66125-035

Russet: 7 (small lenticle russet, few small splotches)
 Surface: Regular Appearance: 5-7 (fair to good)
 Flavor: poor to fair, bland
 Comments: probable discard; small teardrop shape, green; poor storage

66131-021 (introduced as 'Blake's Pride')

Russet: 1 (100%)

Surface: Regular Appearance: 7-9 (good to very good)
Flavor: good, balanced
Comments: attractive allover russet, light, not patchy; not for long storage (keep only to Nov. 1)

66170-047

Russet: 6 (moderate lenticle russet, few small splotches or scratches)
Surface: Regular Appearance: 5-7 (fair to good)
Flavor: acceptable, sweet
Comments: probable discard; tends to small fruit, some blushed, conspicuous russet lenticles; early ripening, no storage life

67218-083

Russet: 7 (small lenticle russet, few small splotches)
Surface: Regular, occ. lumpy Appearance: 7-9 (good to very good)
Flavor: good, balanced
Comments: very attractive red blush to 40% over clear yellow, stores to Nov 1; maybe worth further trial

71655-014

Russet: 8 (small lenticle russet, no dots or splotches)
Surface: Regular Appearance: 9 (very good)
Flavor: acceptable, balanced
Comments: shape turbinate like Comice, attractive, uniform; fruit tends to small, nice coppery blush on some; hangs well on tree; stores to Dec 1; possible for local home garden use

76115-010

Russet: 7 (small lenticle russet, few small splotches)
Surface: Regular Appearance: 7 (good)
Flavor: acceptable to good, sweet
Comments: probable discard (short storage, not likely to be introduced); long pyriform shape, fruit tends to be large; bright red blush to 50%; somewhat aromatic, mealy after storage, good only to Nov. 1

76128-009

Russet: 7 (small lenticle russet, few small splotches)
Surface: Knobby Appearance: 7 (good)
Flavor: acceptable to good, balanced
Comments: excellent disease resistance, possible use for further breeding; smooth pyriform shape, nice finish; flavor bland after storage, sometimes acidic, not promising

78304-057

Russet: 4 (25-50%, or very large lenticle russet)
Surface: Knobby Appearance: 5 (fair)
Flavor: fair, balanced, astringent skin
Comments: probable discard; goes overripe quickly on tree, poor finish, russet unattractive, acidic after storage

Potomac

Russet: 5 (25-50% and prominent lenticle russet or small splotches)
Surface: Knobby, irregular Appearance: 5 (fair)
Flavor: good, sweet
Comments: not very attractive, some russet but good flavor, uniform size; little or no color on fruit; stores well

01/02